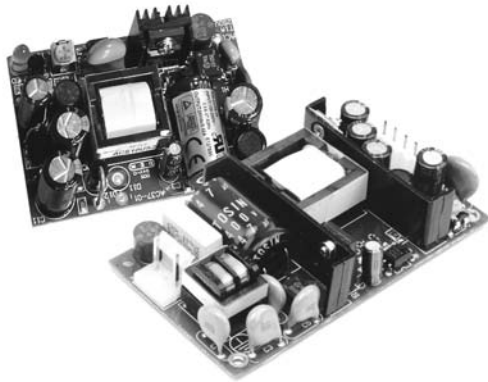


## CU10-20 Series



- Low Cost
- Small Size
- PCB Mount & Open Frame
- 15 Watt Medical Version Available
- Single Output 3-24 V
- Peak Load Capability
- Non-standard Outputs Available

## Specification

## Input

Input Voltage	• 85-264 VAC (120-370 VDC)
Input Frequency	• 47-63 Hz
Input Current	• 0.13 A rms at 230 VAC (CU10) • 0.20 A rms at 230 VAC (CU15) • 0.25 A rms at 230 VAC (CU20)
Inrush Current	• 20 A at 115 VAC, 40 A at 230 VAC, cold start 25 °C
Earth Leakage Current	• Class 2 (CU10/15/15-M) • Class 1 <1.5 mA (CU20)
Input Protection	• 1A fuse (CU10) • 2A fuse (CU15, CU15-M, CU20)

## Output

Output Voltage	• See table
Output Voltage Trim	• $\pm 5\%$
Initial Set Accuracy	• $\pm 1\%$
Minimum Load	• No minimum load required
Start Up Delay	• 1.5 s max
Start Up Rise Time	• 14 ms max
Hold Up Time	• 16 ms typical at full load and 115 VAC
Drift	• 0.6%
Line Regulation	• 0.5% max
Load Regulation	• 1.0% max 10% load to full load
Transient Response	• 4% max deviation, recovery to within 1% within 500 $\mu$ s for 25% load change
Ripple & Noise	• 1% max pk-pk (see note 1)
Overvoltage Protection	• 130-150% of Vnom, recycle input to reset
Short Circuit Protection	• Trip and restart (Hiccup mode)
Temperature Coefficient	• 0.05%/°C

## General

Efficiency	• See tables
Isolation	• 4000 VAC Input to Output (CU15-M) • 3000 VAC Input to Output (CU10/15/20) • 1500 VAC Input to Ground (CU20) • 500 VAC Output to Ground (CU20)
Switching Frequency	• 100 kHz typical for 10 W models • 67 kHz typical for 15/20 W models
Power Density	• 2.43 W/in <sup>3</sup> (CU10); 3.17 W/in <sup>3</sup> (CU15); • 2.92 W/in <sup>3</sup> (CU15-M); 3.91 W/in <sup>3</sup> (CU20)
MTBF	• >500 kHrs per MIL-HDBK-217F (15 & 24 V units >400 kHrs)

## Environmental

Operating Temperature	• CU10/15/20: 0 °C to +65 °C, derate from full load at +45 °C to no load at +65 °C • CU15-M: 0 °C to +70 °C, derate from full load at +50 °C to 50% load at +70 °C
Cooling	• Convection-cooled
Operating Humidity	• 95% RH, non-condensing
Storage Temperature	• -20 °C to +85 °C
Operating Altitude	• 3000 m
Vibration	• 10 Hz to 500 Hz, 2 G for 10 mins/cycle • 60 min each cycle

## EMC &amp; Safety

Emissions	• CU15-M: EN55011 Level B conducted • Others: FCC20780 Level B, EN55022 Class B conducted
ESD Immunity	• EN61000-4-2, level 3, Perf Criteria B
Radiated Immunity	• EN61000-4-3, level 3, Perf Criteria B
EFT/Burst	• EN61000-4-4, level 2, Perf Criteria B
Surge	• EN61000-4-5, level 3, Perf Criteria B
Conducted Immunity	• EN61000-4-6, 10 V, Perf Criteria B
Dips & interruptions	• EN61000-4-11, 30% 10 ms, 60% 1000 ms, 100% 5000 ms, Perf Criteria A, B, B
Safety Approvals	• CU15-M: EN60601, UL2601-1, CSA22.2 No. 601.1 per cUL • Others: EN60950, UL1950, CSA22.2 No. 234 per cUL

**Models and Ratings**

Output Power	Output Voltage <sup>(3)</sup>	Output Current		Efficiency	Model Number
		Nominal	Peak <sup>(2)</sup>		
8.25 W	3.3 VDC	2.50 A	3.80 A	65%	CU10-00 †*
10 W	5.0 VDC	2.00 A	2.80 A	70%	CU10-10 †*
	9.0 VDC	1.12 A	1.50 A	72%	CU10-09
	12.0 VDC	0.84 A	1.20 A	75%	CU10-12 †*
	15.0 VDC	0.67 A	1.00 A	75%	CU10-13 †*
	24.0 VDC	0.42 A	0.65 A	78%	CU10-14 †*

Output Power	Output Voltage <sup>(3)</sup>	Output Current		Efficiency	Model Number <sup>(4)</sup>
		Nominal	Peak <sup>(2)</sup>		
10 W	3.3 VDC	3.00 A	4.50 A	70%	CU15-00 †*
15 W	5.0 VDC	3.00 A	4.50 A	73%	CU15-10 †*
	9.0 VDC	1.67 A	3.00 A	75%	CU15-09
	12.0 VDC	1.25 A	1.80 A	80%	CU15-12 †*
	15.0 VDC	1.00 A	1.50 A	80%	CU15-13 †*
	24.0 VDC	0.63 A	0.95 A	82%	CU15-14 †*

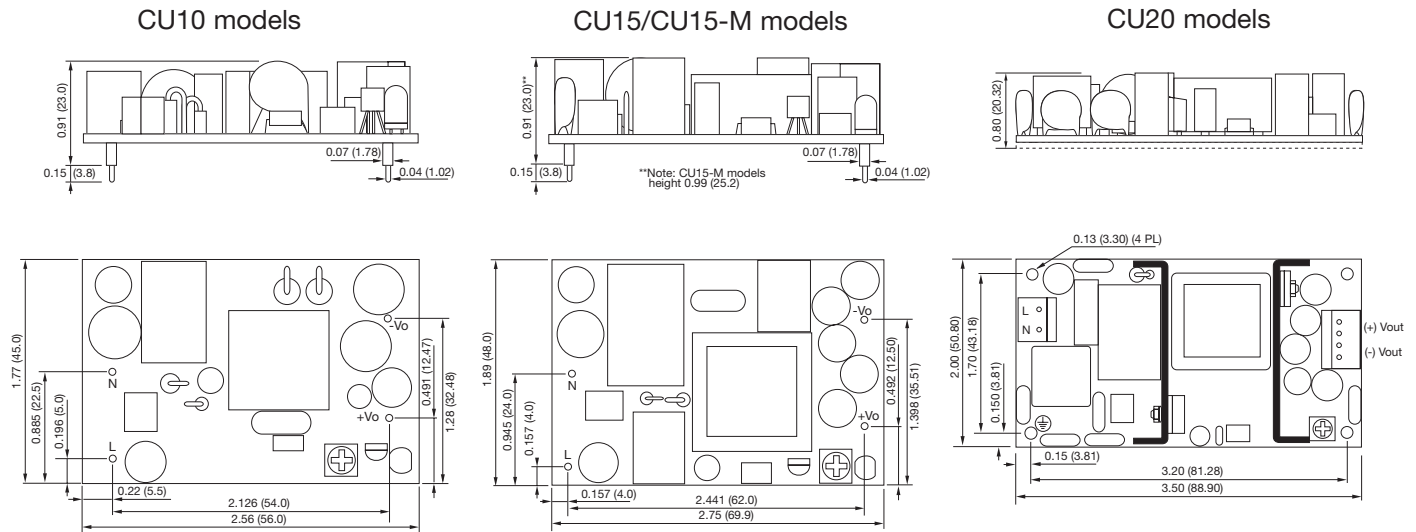
  

Output Power	Output Voltage <sup>(3)</sup>	Output Current		Efficiency	Model Number
		Nominal	Peak <sup>(2)</sup>		
15 W	3.3 VDC	4.40 A	6.60 A	70%	CU20-00 †*
20 W	5.0 VDC	4.40 A	6.60 A	73%	CU20-10 †*
	9.0 VDC	2.44 A	4.00 A	77%	CU20-09
	12.0 VDC	1.80 A	2.70 A	80%	CU20-12 †*
	15.0 VDC	1.40 A	2.10 A	80%	CU20-13 †*
	24.0 VDC	0.92 A	1.40 A	82%	CU20-14 †*

**Notes**

1. Measured at 20 MHz bandwidth. 3.3 V models are 50 mV maximum.
  2. Peak load lasting <30 s with a maximum duty cycle of 10%.
  3. Alternative output voltages available. Consult sales.
  4. Medical approved 15 W version available. Add suffix '-M' to part number.
- † Available from Farnell InOne. (Farnell series ACS10-20)      \*Available from Newark InOne.

**Mechanical Details**



**NOTES:**

1. All dimensions shown in inches (mm).
2. CU20 input connector mates with Molex housing 09-50-3031 and Molex 2878 series crimp terminal. Output connector mates with Molex housing 90-50-3041 and Molex 2878 series crimp terminal.
3. CU20 cable harnesses with 300mm wire available. Order part number CU20 LOOM KIT †.
4. For mating connectors only, order part number CU20-60 CONKIT †.
5. CU20 models only. Covers available. Order part number CU20 COVER † - 4.02" x 2.52" x 1.34" (102 x 64 x 34mm). To receive unit with cover fitted, add suffix '-C' to model number.